State of Rhode Island and Providence Plantations

Department of Health

Division of Emergency Medical Services

Prehospital Care Protocols & Standing Orders

EFFECTIVE AUGUST 1, 2011

State of Rhode Island and Providence Plantations

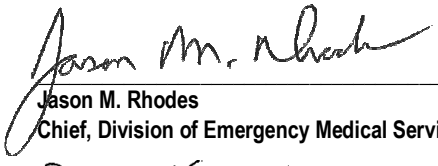
Department of Health
Division of Emergency Medical Services

Safe and Healthy Lives in Safe and Healthy Communities

These protocols and standing orders are established by the Division of Emergency Medical Services of the Rhode Island Department of Health, and the Rhode Island Ambulance Service Advisory Board, pursuant to the authority conferred under sections § 23-4.1-4 and § 23-17.6-4 of the Rhode Island General Laws.

These protocols and standing orders shall supersede all protocols and standing orders previously established and promulgated by the Division of Emergency Medical Services of the Rhode Island Department of Health or the Rhode Island Ambulance Service Coordinating Board.

Contains all protocols effective August 1, 2011



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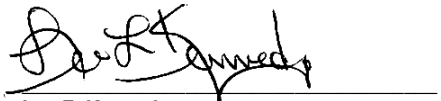

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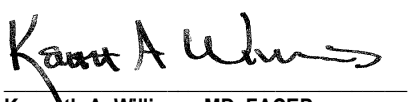

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CLINICAL CARE PROTOCOLS

Cardiac Emergencies

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1.1 Standard Management of All Patients

1. **Respond to the scene in a safe manner.**
   - Using information available from the dispatcher, consider scene safety and initiate pre-arrival assessment and treatment of the patient.
   - Use lights and sirens as may be necessary on the way to the scene of an emergency, whether critical or unknown, or when transporting an emergency patient.
   - Use the National Incident Management System for all responses and scene management, using communications systems and other resources as indicated to establish and maintain safe and efficient operations.
2. **Approach the scene cautiously, and assess scene safety**
   - If a hazard is identified, request assistance and maintain safety through appropriate measures including Personal Protective Equipment (PPE) as indicated.
   - Non-latex gloves and proper size N95 mask (or better) are required for assessment and care of all patients with possible infectious disease.
   - Refer to the *Major Incident* protocol if patient area is determined to be hazardous.
3. **Determine the number of patients/potential patients.**
   - Determine whether the *Major Incident* protocol applies.
   - Determine whether the *Comfort One* protocol applies.
   - Determine whether the *Biological Death* protocol applies.
   - Determine whether adult or pediatric protocols and standards apply.

   
   A pediatric patient is one who is less than 16 years of age.
4. **Consider mechanism(s) of injury.**
   - Request assistance, as necessary.
   - Perform an initial assessment to identify and treat life-threatening problems.
5. **Follow all appropriate *RI EMS Prehospital Care Protocols and Standing Orders* to identify and treat life-threatening and critical conditions.**
6. **Assess each patient, obtain initial vital signs, and frequently reassess each patient's condition.**

7. **Follow all appropriate *RI EMS Prehospital Care Protocols and Standing Orders* to perform the following:**

   - Appropriate physical examination and medical history;
   - Assessment of vital signs (including respiratory rate, heart rate, and blood pressure), with frequent monitoring and/or reassessment. Abnormal vital signs for children and adults are shown in *Table 1*.

TABLE 1: Age-Related Abnormal Vital Signs

Age	Respiratory Rate		Heart Rate		Sys. BP
	Too Slow	*Too Fast*	*Too Slow*	*Too Fast*	*Too Low*
Newborn (birth –1month)	<30	>80	<100	>200	<40
Infant (1 month – 1yr)	<20	>70	<80	>180	<60
Preschool (1-6 years)	<16	>40	<70	>160	<75
School Age (6-12 years)	<12	>30	<60	>140	<85
Adolescent (12 – 16 years)	<10	>24	<60	>120	<90
Adult (>16 years)	<10	>24	<60	>120	<90
Note: Absent radial pulse indicates hypotension					

Core temperature measurement and regulation should be considered while caring for pediatric patients. Attempt to measure the temperature of any pediatric patient who may have a fever, cold exposure, or seizure. Pediatric patients, especially newborns, easily lose heat. Covering the head, heating the patient compartment, and using warmed IV fluids increase or maintain body temperature.

SUPPLEMENTAL DEVICES & INTERVENTIONS

Certain devices and interventions referenced in the *Protocols* are considered supplemental for some or all EMT practice levels and are implemented strictly at the discretion of each ambulance service.

Table 2 summarizes all such devices/interventions referenced in the protocols, and indicates whether each is considered supplemental or core for each Rhode Island EMT practice level. If a device is considered supplemental, then EMTs at that practice level require specific training, credentialing, and authorization from their service's Training Officer before utilizing. With respect to supplemental devices and interventions, Rhode Island EMTs may ONLY utilize those:

- Applicable to their level of licensure;
- For which they have been specifically trained; AND
- For which they have been specifically authorized by their service based on verification of competency.

All devices and interventions must be used in a manner consistent with the *Protocols* as well as manufacturer's published guidelines.

TABLE 2: Supplemental Devices & Interventions Referenced in *Protocols*

Device/Intervention	Basic	Cardiac	Paramedic
Battery-Powered Chest Compression Device	S	S	S
Pneumatically-Powered Chest Compression Device	S	S	S
Pulse-oximeter	S	S	C
CO-oximeter	S	S	S
Supraglottic Airway Laryngopharyngeal Tube (SALT)	S	S	S
Esophageal Obturator Airway (EOA)	S	S	S
Laryngeal Mask Airway (LMA)	S	S	C
LaryngoTracheal Airway (LTA)	S	S	C
Orotracheal Intubation	--	S*	C
Continuous Positive Airway Press. (CPAP) & Bilevel Positive Airway Press. (BiPAP)	--	S	C
Basic Ventilator	S	S	C
Advanced Ventilator	--	S	C

S=SupplementalSkill (EMT must be authorized by their service before using) *only if specifically licensed for ETT

C=Core Skill (no additional authorization required)

8. Use patient monitoring equipment, such as pulse oximeter and ECG monitor, if available and indicated.

9. Provide treatment, stabilizing or supportive care

- Follow all appropriate *RI EMS Prehospital Care Protocols and Standing Orders* to provide indicated treatment and psychological support.
- If a person who is (or appears to be) <16 years old presents to EMS personnel with condition(s) that may reasonably require prehospital care and/or care at a Hospital Emergency Facility, EMTs are to attempt to contact the child's legal guardian in order to obtain the guardian's informed consent to prehospital care and/or transportation of the child. Balance such efforts with need for treatment and/or transport given patient condition.
  - If unable to contact the legal guardian, or if child abuse or neglect is suspected, contact Medical Control for authorization to provide prehospital care and transportation, and request assistance from local or state police (per section 40-11-5 RIGL).
  - If child abuse or neglect is suspected, transfer the child to the care of Hospital Emergency Facility, personnel; then notify the Rhode Island Department for Children, Youth and their Families (1-800-RI-CHILD), as required by section 40-11-3 RIGL.
- For pediatric patients up to 5 feet tall (<35kg / 75lbs), use a pediatric dosing device approved by the Division of EMS to estimate patient weight; to determine appropriate equipment sizes; and to determine pre-calculated doses for most medications to be administered under standing orders.
  - Use adult protocols and standards for any pediatric patients beyond the range of the dosing device (>5 feet tall or >35kg / 75lbs.)
  - For newborn infants less than 1 month old, refer to the *Newborn Resuscitation* protocol.

- For the few medications not included on a pediatric dosing device, and in case the dosing device is unavailable, pediatric drug dosages may be calculated using the patient's weight. IV admixtures and infusion rates may be calculated using the appropriate "Pediatric Rule of Sixes" (the formulas on which a pediatric dosing device is based).
- When necessary, the weight of a pediatric patient may be estimated, using the method shown below:

Weight (in kilograms) ≈ 2 x age (in years) + 8

Example: Estimated weight of 4 year old: (2x4)+8 ≈ 8+8 = 16 kilograms

- Estimated weight may then be used in the "Pediatric Rule of Sixes", as follows:

Pediatric Rule of Sixes for DOPAMINE

mg to mix with NORMAL SALINE for a total volume of 100 mL = 6 x weight (kilograms) Administration rate of 1 mL/hour = 1mcg/kg/min

Example: Preparation of a DOPAMINE infusion for 4 year old patient.

Weight of 4 year old? weight ≈ (2x4)+8 = 16 kg # mg of DOPAMINE to mix with normal saline ≈ 16kg x 6 = 96 mg

If using a burette: Inject 96 mg DOPAMINE (2.4 mL of a 40mg/mL solution) into 100 mL burette. Fill burette to 100 mL with NORMAL SALINE. Infusion rate of 5-20 mL/hour ≈ 5-20 mcg/kg/min.

If using an IV PUMP: Inject 96 mg DOPAMINE (2.4 mL of a 40mg/mL solution) into 100 mL bag of NORMAL SALINE. Infusion rate of 5-20 mL/hour or 5-20 mcg/kg/min.

10. Communicate with Medical Control.

- When the *RI Prehospital Care Protocols and Standing Orders* require the EMT to "contact Medical Control," such "contact" is to be either consultation or notification, as differentiated below.
- Consultation with Medical Control:
  - Direct voice contact between the EMT and physician is required.
  - In the rare circumstance in which direct access to a physician is not feasible, communication may be relayed through a licensed health care professional.
  - In a Major Incident, communication between designated leadership at the scene and receiving hospitals may replace communication between the individual EMT and Medical Control for each patient and may result in orders for a group of patients.
- All EMTs are **permitted** to consult directly with Medical Control physician at any time they feel such communication might be helpful in the care of a patient.

- All EMTs are **required** to consult directly with a Medical Control physician when caring for any patient whose condition includes any of the following:
  - impaired consciousness;
  - any age-related abnormal heart rate, respiratory rate, or blood pressure, as defined in *Table 1*;
  - poisoning or overdose;
  - deterioration from a previously stable condition.
- For any direct consultation with Medical Control, the EMT shall:
  - Request Medical Control and communicate directly with a designated Medical Control physician;
  - Provide a brief report that includes at least the following:
    - EMS unit identification and level (BLS and ALS);
    - patient's sex, approximate age and weight;
    - a statement of the chief complaint or apparent problem(s);
    - a brief history of the present illness or injury;
    - a brief summary of the patient's relevant medical history;
    - a report of the physical assessment, including vital and diagnostic signs;
    - a summary of prehospital care provided; and
    - an estimated time until arrival.

11. Pre-Arrival Notification to Hospital Facility

- Many cases require only routine assessment, treatment, and transportation. For cases that meet all of the following criteria, direct consultation with a Medical Control physician is **not** required, and once en route, the EMT may alternatively notify the destination Hospital Emergency Facility staff of the nature of the case and estimated time until arrival:
  - the patient is fully conscious; and
  - the patient has no age-related abnormal vital or diagnostic signs; and
  - the patient's condition does not include poisoning or overdose; and
  - the patient has not deteriorated from a previously stable condition.

For those services participating in the RI Patient Tracking System (PTS), the EMT is **required** to utilize the PTS system, if available. In such cases, the PTS entry shall serve as the routine pre-arrival notification to hospital staff. No additional notification is required.

- EMT responsible for pre-arrival notification shall:
  - indicate that the contact is for notification;
  - communicate directly with the triage nurse or designated health care provider; and
  - provide a brief summary report that includes at least the following:
    - EMS unit identification and level (BLS and ALS);
    - patient's sex, approximate age, and approximate weight;

- a statement of the chief complaint or apparent problem(s);
- a statement that the patient's vital signs are within normal age-related limits;
- a summary of pre-hospital care provided (not applicable when using the PTS system);
- an estimated time until arrival.

12. Transport patient

- Follow all appropriate *RI EMS Prehospital Care Protocols and Standing Orders* to transport the patient without delay to the appropriate Hospital Emergency Facility or Non-Hospital Emergency Facility, except as follows:
  - In a Major Incident, transport to a Department of Health designated alternative facility or location as directed.
  - Transport all patients in cardiac arrest, respiratory arrest, or respiratory failure to the nearest Hospital Emergency Facility, unless specifically directed to another destination by Medical Control.
- The signs and symptoms of pediatric patients developing serious illness or injury are often subtle. Therefore, all EMTs are required to transport all pediatric patients to a Hospital Emergency Facility for further evaluation unless:
  - An informed refusal of EMS transport is provided by the patient (if ≥ 16 years of age, or married, as provided by section 23-4.6-1 RIGL), or on the patient's behalf by a legal guardian (if patient <16 years of age); or
  - Medical Control, in direct consultation with the EMT, specifically authorizes the EMT to release the patient.
- All EMTs are required to transport patients in an appropriate restraint system providing both transverse and longitudinal protection. Straps are required at the patient's knees, hips, chest, and over the shoulders. Ambulance cots should be positioned at the lowest practical position during transport.
- For pediatric patients of appropriate age, an appropriate restraint system should be a Federal Motor Vehicle Safety Standard (FMVSS) compliant child safety seat properly affixed to a seat or stretcher with the head section elevated unless:
  - care of the patient required immobilization of the spinal column, pelvis or lower extremities; or
  - the patient requires resuscitation or active management of a critical problem.
- EMTs should use seatbelts during transport unless patient care prevents their use.
- All heavy items and equipment in the ambulance, such as monitors and oxygen bottles, should be adequately restrained during transport.

- Transport patients with the following specific conditions to the nearest Hospital Emergency Facility among the options listed in *Table 3* below unless otherwise directed by medical control.

TABLE 3: Specialized Hospital Emergency Facilities

Condition	Criteria	Destination
Major Trauma, Adult	Within 30 minute transport time to Trauma Center (see *Trauma* protocol)	See *Appendix 3: Trauma Centers*
Major Trauma, Pediatric	Within 30 minute transport time transport to Trauma Center (see Trauma Protocol)	Hasbro Children's Hospital (division of RI Hospital)
STEMI*	Within 30 minute transport time transport to PCI Hospital (See *STEMI* protocol)	Charlton Hospital, Fall River (MA) Landmark Hospital, Woonsocket Lawrence & Memorial, New London (CT) Miriam Hospital, Providence Rhode Island Hospital, Providence
Suspected Stroke*	Within 30 minute transport time transport to Stroke Center (See *Stroke* protocol)	Kent Hospital, Warwick Lawrence & Memorial, New London (CT) Memorial Hospital, Pawtucket Miriam Hospital, Providence Newport Hospital, Newport Rhode Island Hospital/ Hasbro Children's Hospital, Providence Roger Williams Medical Center, Providence
Carbon Monoxide Poisoning*	Measured CO level >25 ppm and symptomatic	Kent Hospital, Warwick

* Contact Medical Control first

13. Assess all patients for level of pain using a pain scale.

- Record the patient's level of pain, if any, on the *RI EMS Ambulance Run Report*.
- Treat pain using supportive measures and the *Patient Comfort* protocol.
- Record changes in pain level after interventions as indicated.

14. Attach an approved patient identification and tracking device to the patient, if available, any belongings transported with the patient, and the *RI EMS Ambulance Run Report*.

15. For those services participating in the RI Patient Tracking System (PTS) program, enter all required information in the PTS after applying the designated tracking device.

16. Document all incident information by completing the *RI EMS Ambulance Run Report*.

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2.9 Supraventricular Tachycardia (SVT) [ALS]

Adult Patient, Conscious with Stable Vital Signs

For pediatric patients < 16 years of age, follow *SVT (Pediatric) – Stable* protocol

RECOGNITION

- ✔ Conscious patient with heart rate of 140-220 beats per minute; QRS width <0.12 seconds.

NOTE: If the QRS width >0.12 seconds, consider ventricular tachycardia (VT).

TREATMENT

1. **Assess patient, obtain initial vital signs, and frequently reassess patient's condition.**
2. **Loosen tight clothing and allow the patient to choose a comfortable position unless hypotensive (hypotensive patients should be supine).**
3. **Administer OXYGEN with the highest-concentration device tolerated.**
4. **Place the patient on a cardiac monitor.**
   - Observe and record the initial ECG rhythm, and any rhythm changes.
   - Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*.
5. **Encourage the patient to perform vagal maneuvers (e.g., bearing down, etc.)**
6. **Establish IV access.**
   - Start at least one IV of NORMAL SALINE or LACTATED RINGER'S solution to run at KVO rate (~20 mL/hour).
   - If unable to establish an IV in 2 attempts or 5 minutes transport the patient to a Hospital Emergency Facility. Any further attempt at IV placement must occur en route.
7. **Administer ADENOSINE (Adenocard®) as indicated below:**

   STOP ADENOSINE should not be given to patients taking dipyramidole (Persantine®, Aggrenox®), or patients who have had a heart transplant as the effects may be prolonged and unpredictable.

   - Administer ADENOSINE 6 mg, rapid IV push (over 1-3 seconds), followed by rapid flush with 20 mL NORMAL SALINE or LACTATED RINGER'S solution.
     - If atrial fibrillation or atrial flutter is confirmed, EMT-Ps ONLY may skip administration of ADENOSINE and proceed directly to administering DILTIAZEM or VERAPAMIL as described below.

- If 6 mg dose does not convert rhythm within 1-2 minutes, administer ADENOSINE 12 mg, rapid IV push (over 1-3 seconds), followed by rapid flush with 20 mL NORMAL SALINE or LACTATED RINGER'S solution. If 12 mg dose does not convert rhythm, repeat once in 1-2 minutes.

8. Contact Medical Control.

9. EMT-Cs with authorization from Medical Control, or EMT-Ps may perform the following:

- Administer DILTIAZEM 10-20 mg IV over 2 minutes if the ADENOSINE did not covert rhythm and the patient does not have CHF or significant ventricular dysfunction. If this does not slow or convert rhythm within 15 minutes, repeat DILTIAZEM 10-20 mg IV over 2 minutes.
  - If, following dose of DILTIAZEM the patient's systolic blood pressure drops below 100mmHg, administer CALCIUM CHLORIDE 500 mg IV over 1-2 minutes.

10. With authorization from Medical Control, EMT-Ps ONLY may perform the following:

- Administer VERAPAMIL HCL (Calan®, Isoptin®) 2.5-5.0 mg IV over 1-2 minutes if the ADENOSINE did not convert rhythm and the patient does not have CHF or significant ventricular dysfunction. If this dose does not convert rhythm within 15 minutes, repeat VERAPAMIL HCL 2.5-5.0 mg IV over 1-2 minutes.
  - If, following dose of VERAPAMIL the patient's systolic blood pressure drops below 100mmHg, administer CALCIUM CHLORIDE 500 mg IV over 1-2 minutes.
- If SVT continues following dose of VERAPAMIL HCL or DILTIAZEM, Medical Control may authorize administration of AMIODARONE 150 mg IV over 10 minutes. (Use caution if patient has history of CHF or ventricular dysfunction).
  - Administer AMIODARONE by IV Infusion Pump at a rate as directed by Medical Control (typically 1-15 mg/min. Faster rates are associated with a higher risk of hypotension).

> ⚠ Due to the high risk of side effects with incorrect dosage, AMIODARONE infusions may only be administered by IV Infusion Pump. AMIODARONE must be mixed with D5W and should be administered using a "PVC-free" bag and tubing (if available) and run as an isolated IV (not piggybacked into NORMAL SALINE or LACTATED RINGER'S solution).

11. Transport the patient without delay to the nearest appropriate Hospital Emergency Facility.

12. Document all incident information by completing the *RI EMS Ambulance Run Report*.

2.10 Supraventricular Tachycardia (SVT) [ALS]

Adult Patient, Unconscious or with Unstable Vital Signs

For pediatric patients < 16 years of age, follow *SVT (Pediatric) – Unstable* protocol

RECOGNITION

- ✔ Patient with heart rate of 140-220 beats per minute and QRS width <0.12 seconds.

NOTE: If the QRS width >0.12 seconds, consider ventricular tachycardia (VT).

TREATMENT

1. **Assess patient, obtain initial vital signs, and frequently reassess patient's condition.**
2. **Administer OXYGEN with the highest-concentration device tolerated.**
3. **Place the patient on a cardiac monitor.**
   - Observe and record the initial ECG rhythm, and any rhythm changes.
   - Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report.*
4. **Attempt to cardiovert the patient, as indicated below:**
   - For conscious patients, consider contacting Medical Control for authorization to administer sedative and/or analgesic, following the *Pain Management and Sedation* protocol.
   - Record initial ECG rhythm and attempted cardioversions; attach copies of the rhythm strips to the hospital copy of the *RI EMS Ambulance Run Report*, as part of required documentation.
   - Attempt synchronized cardioversion at 50 joules or manufacturer's biphasic setting.
   - If unsuccessful, may repeat at increasing energy levels: 100 joules, 200 joules, 300 joules, 360 joules (or maximum energy) or manufacturer's biphasic setting.
5. **Establish IV access.**
   - Start at least one IV of NORMAL SALINE or LACTATED RINGER'S solution to run at KVO rate (~20 mL/hour).
   - If unable to establish an IV in 2 attempts or 5 minutes transport the patient to nearest appropriate Hospital Emergency Facility. Any further attempt at IV placement must occur en route.
6. **Administer ADENOSINE (Adenocard®) as indicated below:**
   - Administer ADENOSINE 12 mg, rapid IV push (over 1-3 seconds), followed by rapid flush with 20mL NORMAL SALINE or LACTATED RINGER'S solution.

- If 12 mg dose does not convert rhythm within 1-2 minutes, repeat ADENOSINE 12 mg, rapid IV push (over 1-3 seconds), followed by rapid flush with 20 mL NORMAL SALINE or LACTATED RINGER'S solution.

ADENOSINE should not be given to patients taking dipyramidole (Persantine®, Aggrenox®), or patients who have had a heart transplant as the effects may be prolonged and unpredictable.

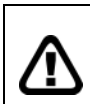
7. Contact Medical Control.

8. EMT-Cs with authorization from Medical Control, or EMT-Ps may perform the following:

- Administer DILTIAZEM 10-20 mg IV over 2 minutes if the ADENOSINE did not covert rhythm and the patient does not have CHF or significant ventricular dysfunction. If this does not slow or convert rhythm within 15 minutes, repeat DILTIAZEM 10-20 mg IV over 2 minutes.
  - If, following dose of DILTIAZEM the patient's systolic blood pressure drops below 100mmHg, administer CALCIUM CHLORIDE 500 mg IV over 1-2 minutes.

9. With authorization from Medical Control, EMT-Ps ONLY may perform the following:

- Administer VERAPAMIL HCL 2.5-5.0 mg IV over 1-2 minutes. If this dose does not slow or convert rhythm within 15 minutes, repeat VERAPAMIL HCL 2.5-5.0 mg IV over 1-2 minutes.
  - If, following dose of VERAPAMIL HCL, the patient's systolic blood pressure drops below 100mgHG, administer CALCIUM CHLORIDE 500mg IV over 1-2 minutes.
- If SVT continues following dose of VERAPAMIL HCL or DILTIAZEM, Medical Control may authorize administration of AMIODARONE 150 mg IV over 10 minutes. (Use caution if patient has history of CHF or ventricular dysfunction).
  - Administer AMIODARONE by IV Infusion Pump at a rate as directed by Medical Control (typically 1-15 mg/min. Faster rates are associated with a higher risk of hypotension).



Due to the high risk of side effects with incorrect dosage, AMIODARONE infusions may only be administered by IV Infusion Pump. AMIODARONE must be mixed with D5W and should be administered using a "PVC-free" bag and tubing (if available) and run as an isolated IV (not piggybacked into NORMAL SALINE or LACTATED RINGER'S solution).

10. Transport the patient without delay to the nearest appropriate Hospital Emergency Facility.

11. Document all incident information by completing the *RI EMS Ambulance Run Report*.

4.2 Airway Management & Respiratory Support

RECOGNITION

- ✔ Patients with decreased level of consciousness (Glasgow Coma Scale [GCS] <8)
- ✔ Inability to protect airway, decreased/ineffective gag reflex
- ✔ Abnormal or ineffective respiratory effort
- ✔ Respiratory and/or cardiac arrest

> STOP Assume cervical spinal injury for all patients with suspected trauma. In such cases stabilize the patient's head and cervical spine in the neutral position, and use the jaw-thrust maneuver without head-tilt.

Airway management includes:

- Establishing and maintaining a **patent airway** through position, suction, and use of basic and/or advanced airway devices.
- Providing sufficient **oxygenation** to prevent hypoxia or hypoxemia.
- Providing artificial **ventilation** of the lungs to prevent/treat hypercarbia, or supporting respiratory efforts (when indicated) using CPAP/BiPAP.

TREATMENT

1. **AIRWAY PATENCY: Perform initial assessment, clear the airway, and provide initial airway management following the American Heart Association (AHA) BLS guidelines. If the airway is obstructed, follow the *Foreign Body Airway Obstruction* protocol.**

> ⚠ All devices must be used in accordance with manufacturer's instructions. See *Advanced Airway Procedures* protocol.

   - ▸ Suction the oropharynx as necessary.
   - ▸ Establish and maintain a patent airway through use of a basic airway device (Oropharyngeal Airway [OPA], Nasopharyngeal Airway [NPA], or Supraglottic Airway Laryngopharyngeal Tube [SALT]) for those patients having an ineffective gag reflex.
   - ▸ Consider using an advanced airway device to maintain the airway. (See *Advanced Airway Procedures*.)
   - ▸ **EMT- Ps ONLY** may attempt cricothyrotomy if removal of a foreign body is unsuccessful, or if unable to ventilate, following the *Advanced Airway Procedures* protocol.

2. **OXYGENATION: Provide OXYGEN to all patients with signs of serious illness or injury or with hypoxia (pulse oximetry <94% or with cyanosis).**

   - ▸ Use an administration device and OXYGEN flow rate to achieve adequate oxygenation (pulse oximetry >94%).

- If pulse oximetry is not available, use the administration device and flow rate that provide the highest concentration of OXYGEN available, as tolerated by the patient.

> ⚠ Supplemental oxygen is not necessary for Acute Coronary Syndrome (ACS) or stroke patients so long as their SpO2 is >94% and there is no evidence of respiratory distress.

- Use warmed and humidified OXYGEN is preferred whenever possible.
- Whenever possible, use capnometry to verify advanced airway placement, measure effectiveness of interventions, and provide continuous monitoring of patient respiration/ventilation.
  - If continuous waveform capnography is used, attach strip to run report.

3. VENTILATE: Ventilate (or assist the ventilations of) any patient having an ineffective or absent respiratory effort.

- Use high-flow supplemental OXYGEN with one or more of the following devices of the proper size and settings for the patient age and weight:
  - Mouth-to-mask
  - Bag-valve-mask device capable of providing >75% oxygen concentration; 2-EMT technique preferred
  - If available, use a respiratory support device (CPAP, see *Table 1*) as authorized in specific protocols
  - If available, use a ventilator (see *Table 1*) designed for use with a mask, basic or advanced airway device

TABLE 1: Respiratory Support Device & Ventilator Types

Devices	Uses	EMT Level	Comments
CPAP/BiPAP	Asthma, COPD, CHF	ALS Only	Use as directed by protocol and manufacturer's directions.
Basic Ventilators	Respiratory and/or cardiac arrest	All EMTs	Oxygen or battery powered, capable of controlled respiratory rate, tidal volume. Provides either fixed FiO2 of 100% or adjustable FiO2.
Advanced Ventilators	Respiratory distress Respiratory and/or cardiac arrest	ALS Only	Electrically powered, are capable of accurate control of respiratory rate, tidal volume, FiO2, I:E ratio, multiple modes, CPAP/BiPAP functions, and other sophisticated adjustments

- Ventilate patient at the appropriate rate, as shown in *Table 2*.

TABLE 2: Ventilation Guidelines

Patient Age	Respiratory Rate		Ventilation	Suggested Bag Size	Approx. Tidal Volume
	Too Slow	*Too Fast*	*Breaths/Min*		
Newborn (birth-1 month)	<30	>80	40-60	Infant	50-100
Infant (1 month – 1 year	<20	>70	30-40	Infant	100-200
Pre-School (1-6 years)	<16	>40	20-30	Child	200-300
School Age (6-12 years)	<12	>30	16-20	Child	300-400
Adolescent (12-16 years)	<10	>24	12-16	Adult	400-500
Adult (≥16 years)	<10	>24	12-16	Adult	500-600

4. Contact Medical Control.

5. Transport the patient.

- Transport all patients in cardiac arrest, respiratory arrest, or respiratory failure to the nearest appropriate Hospital Emergency Facility, unless specifically directed to another destination by Medical Control.
- For all patients with unrelieved airway obstruction contact Medical Control for guidance.

6. Document all incident information by completing the *RI EMS Ambulance Run Report*.

4.7 Impaired Consciousness

ALL EMTs

1. **Unless able to rule out trauma, stabilize neck and spine with cervical collar and spineboard as soon as possible.**
2. **If poisoning or overdose is suspected, see the *Poisoning and Overdose* protocol.**
3. **If stroke is suspected, see the *Stroke* protocol.**
4. **Perform initial assessment while protecting the airway.**
   - Determine the level of consciousness with the AVPU method or Glasgow Coma Scale.
   - Evaluate pupillary response and size.
   - Check breath for odors (alcoholic beverage or acetone).
   - Examine for needle tracks.
   - Examine for medic-alert tags.
5. **Prevent patient from sustaining any injuries.**
6. **Position on left side (unless contraindicated), and suction secretions if needed.**
7. **Administer OXYGEN with the highest concentration device indicated; assist ventilation as necessary.**
   - If signs of ventilatory problems arise, follow the *Airway Management and Respiratory Support* protocol.
8. **Obtain history from family and/or bystanders including medications taken, possible ingestions or drug use, and possible trauma or other conditions.**
9. **If electronic glucose meter is available, determine blood glucose (bG) concentration.**
10. **If the bG concentration is <60 mg/dl or if the patient has signs and/or symptoms of hypoglycemia regardless of the availability of bG measurement, and the patient's mental status is "alert" (A) or becomes "alert to verbal"(V) stimuli:**
    - Administer ORAL GLUCOSE with approximately 15 grams of GLUCOSE (e.g. Glucola, Glutose 15™, InstaGlucose).
    - Repeat administration of ORAL GLUCOSE product, approximately 15 grams, if evidence of hypoglycemia persists beyond 15 minutes after the first dose.

Do not administer ORAL GLUCOSE product to a patient who is vomiting, nauseated, or not fully awake.

BLS PERSONNEL

11. **If the bG concentration is <60 mg/dL or if the patient has signs and/or symptoms of hypoglycemia and bG measurement is unavailable:**
    - Contact Medical Control for authorization to administer GLUCAGON, if available:
      - **Adult patients:** 1mg (1 unit) IM
      - **Pediatric patients (< 16 years old):** 0.1 mg/kg to a maximum of 1mg (1 unit), IM

12. If no improvement in mental status, contact MEDICAL CONTROL for permission to administer NALOXONE HCL (Narcan®) 0.4mg IM or Intranasal (IN).

- If narcotic overdose is NOT suspected, repeat NALOXONE (Narcan®) in 0.4mg doses at 1-minute intervals until improvement in mental status or a total dose of 2 mg.
- If narcotic overdose IS suspected, repeat NALOXONE HCL (Narcan®) in 2.0mg doses to a total of 10mg or as directed by Medical Control.

ALS PERSONNEL ONLY

13. Establish IV access.

- Start an IV of NORMAL SALINE or LACTATED RINGER'S solution at KVO rate (~20 ml per hour).
- If unable to start an IV in 2 attempts or 5 minutes transport the patient to a Hospital Emergency Facility. Any further attempt at IV placement must occur en route.

14. If the bG concentration is <60 mg/dL or if the patient has signs and/or symptoms of hypoglycemia and bG measurement is unavailable, administer 10% DEXTROSE or 50% DEXTROSE.

> ⚠ Because of the dangers of extravasation, 10% DEXTROSE ($D_{10}W$) should be the preferred form of delivery for DEXTROSE.

- Administer an IV bolus of 10% DEXTROSE ($D_{10}W$) as follows:
  - **Adult patients:** Administer 250cc of DEXTROSE (D10W) 25g/250cc IV bolus over 5 minutes.
  - **Pediatric patients (<5 feet tall [<35kg/75 lbs]):** Administer 2mL/kg (or as indicated on pediatric dosing device) of DEXTROSE (D10W) 25g/250cc IV bolus over 10 minutes.
- **OR** administer an IV bolus of 25% or 50% DEXTROSE ($D_{25}W$/$D_{50}W$) as follows:
  - **Adult patients:** Administer 50% DEXTROSE ($D_{50}W$) 25 g (50 mL) IV over 2 minutes. Repeat once in 5 minutes if there is no improvement in mental status.
  - **Pediatric patients (<5 feet tall [<35kg/75 lbs]):** Administer 25% DEXTROSE ($D_{25}W$) as indicated on pediatric dosing device at 2mL/kg (0.5mg/kg) over 5 minutes. ($D_{25}W$ may be prepared by diluting $D_{50}W$ 1:1 with sterile water or NS.)

15. If unable to establish an IV, administer GLUCAGON as follows:

- **Adult patients:** 1 mg (1 unit) IM
- **Pediatric patients (< 16 years old):** 0.1 mg/kg to a maximum of 1mg (1 unit), IM

16. If the bG concentration is <60 mg/dL or if the patient has signs and/or symptoms of hypoglycemia and bG measurement is unavailable, administer THIAMINE HCl 100 mg IV push or IM.

17. If no improvement in mental status, administer NALOXONE HCL (Narcan®) 0.4mg IV push (or IM, Intranasal [IN], or diluted in 10 mL NORMAL SALINE by endotracheal tube).

> ⚠ An endotracheal tube is the least-preferred option for medication administration, and should be used only if other routes are unavailable.

- If narcotic overdose is NOT suspected, repeat NALOXONE HCL (Narcan®) in 0.4mg doses at 1-minute intervals until improvement in mental status or a total dose of 2 mg.

- If narcotic overdose IS suspected, repeat NALOXONE HCL (Narcan®) in 2.0mg doses until improvement in mental status or to a total of 10mg, or as directed by Medical Control.

18. Place the patient on a cardiac monitor.

- Observe and record the initial ECG rhythm, and any rhythm changes.
- Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*.

ALL EMTs

19. Contact Medical Control.

20. Transport patient without delay to a Hospital Emergency Facility.

21. Document all incident information by completing the *RI EMS Ambulance Run Report*.

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4.13 Stroke (CVA, Brain Attack)

RECOGNITION

- ✔ Unilateral paralysis, unilateral numbness, language disturbance, monocular blindness, vertigo or abrupt disturbance of gait. For additional stroke assessment see tool in appendix (page 9.3), if needed.

"FAST" STROKE RECOGNITION

***F**ace*	***A**rm*	***S**peech*	***T**ime*
Does the **face** look uneven?	Does one **arm** drift down?	Does their **speech** sound strange?	**Time** is brain – determine last time patient was without symptoms. Contact Medical Control at Stroke Center.

TREATMENT

> STOP If a patient is suspected of having a stroke, and is not hypoglycemic or suspected of having opiate overdose, do not administer ASPIRIN. No further medications should be administered without contacting Medical Control. Do not administer anything by mouth (including medications) unless indicated for treatment of hypoglycemia.

1. Perform initial assessment while protecting the airway.

- Perform initial assessment while protecting the airway.
- If the patient has any impaired consciousness, refer to the *Impaired Consciousness* protocol.
- Obtain vital signs and frequently reassess patient condition.
- Obtain history from patient, family, and/or bystanders to include:
  - When was the patient last known to be without symptoms?

    > ⚠ Obtain accurate time or document if last time without new symptoms cannot be determined. Try to get phone number of, or bring along, person who witnessed last known time without symptoms.

  - Did the patient have a seizure or head injury at the time of onset?
  - Did the patient complain of a headache, neck pain, or neck stiffness prior to onset?
  - Did the patient undergo any recent surgery?
  - Has patient had a recent stroke or TIA?
  - Does patient have history of hypertension or diabetes?
  - Does the patient take any antiplatelet/anticoagulant medications?

2. **Provide supplemental oxygen to maintain SpO_2 > 94%.**

   - If SpO_2 measurement is not available, administer OXYGEN with the highest concentration device tolerated. Assist ventilations as necessary.

ALS PERSONNEL ONLY

3. **Place the patient on a cardiac monitor.**

   - Observe and record the initial ECG rhythm and any rhythm changes.
   - Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*.
   - Start an IV access device or establish an IV of NORMAL SALINE solution only. If not established on first attempt, further attempts should occur during transport.
     - **Adult patients:** Start an IV of NORMAL SALINE at KVO (20-30 ml/hour.)
     - **Pediatric patients < 5 feet tall (<35 kg / 75 lbs.):** Start an IV of NORMAL SALINE at KVO (10-20 ml/hour.)

ALL EMTs

4. **Contact Medical Control at the nearest Stroke Center Hospital**

   If a Stroke Center is within a 30-minute transport radius of the patient, it should be the preferred receiving hospital for patients with suspected stroke.

   - For all suspected stroke patients, contact Medical Control at the closest Stroke Center to discuss permission to proceed directly to that facility. Stroke Centers are listed in the *Standard Management of All Patients* protocol.
   - Notify the receiving hospital immediately in order to minimize time to intervention.

5. **Transport patient without delay to a Hospital Emergency Facility.**

   - Transport the patient without delay to a Hospital Emergency Facility, or to a Stroke Center if so directed by Medical Control.
     - **Adult patients:** If within 30 minutes, the preferred destination is a designated Stroke Center (see *Standard Management of All Patients*)
     - **Pediatric patients:** If within 30 minutes, the preferred destination is Hasbro Children's Hospital.

6. **Document procedures by completing the *RI EMS Ambulance Run Report*.**

5.1 Trauma

DEFINITIONS

Level I Trauma Center: A hospital emergency facility verified by the American College of Surgeons as a Level I Trauma Center for adult and/ or pediatric patients. For a list of ACS-verified Level I Centers in or near Rhode Island, see *Appendix 3: Trauma Centers*.

PRINCIPLES

- Rapid initial assessment is essential. Access to the patient for the initial assessment and initial treatment should take precedence over complete extrication.
- Transport should always occur as soon as possible after immobilization (ideally, in less than 10 minutes at the scene). Further treatment should be given en route.

ASSESSMENT AND TREATMENT

1. **Stabilize the patient's neck and spine and immobilize with cervical collar and spineboard as soon as possible.**
2. **Follow the *Airway Management and Respiratory Support* protocol to manage the airway and to ensure oxygenation and ventilation. If an airway emergency exists, follow the *Airway Management and Respiratory Support* protocol.**
   - Use the jaw-thrust without head-tilt, taking care to avoid movement of the cervical spine.
   - Clear upper airway manually or by suction, as necessary.
   - Administer OXYGEN with the highest-concentration device tolerated.
   - If respirations are absent or ineffective, ventilate or assist, as needed.
3. **Control bleeding by direct pressure. Do not remove penetrating objects unless authorized by Medical Control.**
4. **If the patient is unconscious and pulseless, determine if the *Biological Death or Comfort One* protocol applies. If criteria for *Biological Death* or *Comfort One* are not met, start basic life support and follow *Cardiac Arrest* protocol.**
5. **Assess patient, obtain initial vital signs, and frequently reassess patient's condition.**
6. **Determine the patient's initial trauma score. Refer to *Revised Trauma Score (Adult)* and *Trauma Score (Pediatric)* tables.**

7. **Transport the patient without delay to an appropriate Hospital Emergency Facility and contact Medical Control en route.**

   - **Adult patients:**
     - If the trauma score <11, or the patient's "situation of injury" includes any of the trauma factors identified on the *RI EMS Ambulance Run Report*, and you are **within** 30 minutes ground transport time to an Adult Level I Trauma Center, transport to that trauma center's emergency department, unless an airway emergency exists.
     - If the scene time and/or ground transport time will be **more than** 30 minutes, and a landing site is available, consider transport by air ambulance from the scene to an Adult Level I Trauma Center. Follow the *Air Ambulance* protocol.
     - If you are **beyond** 30 minutes ground transport time to an Adult Level I Trauma Center, transport to the nearest Hospital Emergency Facility.
   - **Pediatric patients <5 feet tall (<35 kg/75 lbs):**
     - If the pediatric trauma score is <9 or the patient's "situation of injury" includes any of the trauma factors identified on the *RI EMS Ambulance Run Report*, and you are **within** 30 minutes ground transport time to a Pediatric Level I Trauma Center, transport to that trauma center's emergency department, unless an airway emergency exists.
     - If the scene time and/or ground transport time will be **more than** 30 minutes, and a landing site is available, consider transport by air ambulance from the scene to a Pediatric Level I Trauma Center. Follow the *Air Ambulance* protocol.
     - If you are **beyond** 30 minutes ground transport time to a Pediatric Level I Trauma Center, transport to the nearest Hospital Emergency Facility.

8. **If the patient is pregnant and no contraindications exist, elevate the patient's right side (or tilt spineboard to the left) during transport.**

9. **If signs of shock are present, priority should be given to early contact with Medical Control and to rapid transport to the appropriate facility. Follow the *Shock* protocol en route.**

   - Apply and inflate the Pneumatic Anti-Shock Garment, following the *PASG* protocol.

ALS PERSONNEL ONLY

10. **Establish IV access.**

    - Start a large bore IV of NORMAL SALINE or LACTATED RINGER'S solution at KVO rate (~20 ml per hour).
    - **Adult patients:** Administer IV "wide open" until there is an improvement in systolic BP to a value above 90 mm Hg; or until clinical signs of CHF develop.
    - **Pediatric patients <5 feet tall (<35 kg/75 lbs):** Administer fluid boluses of 20 mL/kg/dose by rapid IV push. Reassess patient after each dose, and repeat boluses as necessary to achieve systolic BP above age-related hypotensive value (refer to table).
      - For pediatric patients with evident or suspected intra-abdominal injury, attempts to start IVs should be made above the diaphragm.

- If unable to start an IV in 2 attempts or 5 minutes transport the patient to a Hospital Emergency Facility. Any further attempt at IV placement must occur en route.
- If transport time will be longer than 15 minutes, start a second IV at a different site.

11. Place the patient on a cardiac monitor.

- Observe and record the initial ECG rhythm, and any rhythm changes.
- Attach a copy of the initial rhythm strip to the hospital copy of the *RI EMS Ambulance Run Report*.

ALL EMTs

12. Continue further treatment as shown below.

13. Document all incident information by completing the *RI EMS Ambulance Run Report.*

FURTHER TREATMENT OF CHEST TRAUMA

- Administer OXYGEN with the highest-concentration device tolerated; assist ventilations as necessary.
- **Flail chest** (paradoxical movement of a portion of the chest wall):
  - Position patient with injured side down, unless contraindicated.
  - Provide manual stabilization of flail segment or splint, as needed.
- **Open pneumothorax** (sucking chest wound):
  - Close on three sides by any appropriate means available (e.g., gauze pad with Vaseline®, plastic wrap, defibrillator pad, etc.)
  - Monitor the patient closely for evidence of developing tension pneumothorax.
- **Tension pneumothorax** (increasing ventilatory impairment; distended neck veins; absent breath sounds with hyper-resonance on one side of the chest; tracheal deviation away from the side without breath sounds):
  - If present, after closure of a sucking chest wound, remove the dressing to convert it to a simple open pneumothorax again.
  - **EMT-Ps ONLY** may attempt pleural decompression.

FURTHER TREATMENT OF ABDOMINAL TRAUMA

- **Closed (blunt) injuries:**
  - Place patient supine with legs elevated, with flexion at hips and knees, unless contraindicated.
- **Open (penetrating) injuries:**
  - Place patient supine with legs elevated, with flexion at hips and knees, unless contraindicated
  - Cover wound with sterile dressing and stabilize any impaled object.
  - If evisceration is present, moisten sterile dressing with sterile saline.

FURTHER TREAMENT OF HEAD/SPINAL INJURIES

- Establish airway, and maintain with appropriate maneuver following the *Airway Management and Respiratory Support* protocol.
- Provide manual inline c-spine stabilization. Stabilize neck and spine with cervical collar and spineboard as soon as possible.
- Control scalp bleeding by direct pressure unless obvious fracture of skull is present.
- Assess the patient's neurologic status using the AVPU method or Glasgow Coma Scale, and repeat en route.
- For an unconscious patient, ventilate with high-concentration OXYGEN following the *Airway Management and Respiratory Support* protocol. Hyperventilate only if there are signs of impending brain herniation.

ALS PERSONNEL ONLY

- Maintain IV of NORMAL SALINE or LACTATED RINGER'S solution as indicated below:
  - **Adult patients:** In the absence of shock, reduce NORMAL SALINE or LACTATED RINGER'S IV to KVO rate (20-30mL/hour). If there is evidence of shock, administer IV fluid "wide open."
  - **Pediatric patients <5 feet tall (<35 kg/75 lbs):** In the absence of shock, reduce NORMAL SALINE or LACTATED RINGER'S solution IV to KVO rate (10-20 mL/hour). If there is evidence of shock, administer boluses of 20 ml/kg/dose by rapid IV push.

FURTHER TREATMENT OF EXTREMITY TRAUMA (AMPUTATION, FRACTURE)

- Document any unusual circumstance involving the injury (e.g., gross contamination, movement from the original position prior to your arrival) by completing the *RI EMS Ambulance Run Report*.
- Cover open (compound) fractures or amputation stumps with sterile dressings, then immobilize the limb. Elevation of an immobilized extremity is often helpful in controlling bleeding.

- Immobilize an apparent fracture, dislocation, or amputation in the position found with appropriate splinting devices, unless:
  - There are no pulses distal to injury site. Contact Medical Control if distal pulses are absent. Medical Control may authorize movement of the extremity.
  - The extremity is angulated and interferes with safe transport.
  - There is an apparent fracture of the shaft of the femur.
  - **Adult patients:** Apply a traction splint.
  - **Pediatric patients <5 feet tall (<35 kg/75 lbs):** Apply a pediatric traction splint, if available.
- Place amputated parts in a sterile dressing moistened with STERILE SALINE. Place the dressing that contains the amputated part(s) in a towel or a plastic bag, then on an ice pack, if available. **Do not place the amputated parts directly on ice or in any liquids.**

ALS PERSONNEL ONLY

- Maintain IV of NORMAL SALINE or LACTATED RINGER'S solution as indicated below:
  - Start IV(s) in uninvolved extremities or proximal to fracture sites (in cases of multiple fractures).
  - **Adult patients:** In the absence of shock, reduce NORMAL SALINE or LACTATED RINGER'S solution IV to KVO rate (20-30 ml/hour) If there is evidence of shock, administer IV fluid "wide open."
  - **Pediatric patients <5 feet tall (<35 kg/75 lbs):** In the absence of shock, reduce NORMAL SALINE or LACTATED RINGER'S solution IV to KVO rate (10-20 mL/hour). If there is evidence of shock, administer boluses of 20mL/kg/dose by rapid IV push.

FURTHER TREATMENT OF EYE TRAUMA

- Check for pain, loss of vision, and eye muscle function (side-to-side and up-and-down eye motions).
- Manage eye trauma by:
  - Irrigation of chemical or small foreign body injuries for at least 15 minutes, using at least 500 mL of LACTATED RINGER'S or NORMAL SALINE.
  - **EMT-Ps ONLY:** For chemical or small foreign body injuries only, may instill TETRACAINE HCL 0.5% solution, 1-2 drops into affected eye. May repeat every 5-10 minutes to a maximum of 3 doses.
  - **EMT-Ps ONLY:** Only in cases where irrigation of liquid injuries (chemical or hot liquids) is required, trained personnel may use a soft contact lens-type irrigation system (Morgan Lens® or equivalent) using at least 500ml of LACTATED RINGER'S or NORMAL SALINE solution.
  - Protecting traumatized eye by applying an appropriate dressing and protective eye shield. Do not apply pressure or dressings directly to the eyeball (globe).
  - Covering both eyes to limit sympathetic movement of the injured eye.
- Document the type of injury (e.g., contusion, laceration, chemical, foreign body) by completing the *RI EMS Ambulance Run Report*.

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8.1 Advanced Airway Procedures

Ambulance services may choose different options regarding the advanced airway devices their personnel utilize. EMTs may ONLY use advanced airway devices and interventions applicable to their level of licensure, for which they have been specifically trained, AND for which they have been authorized by their service based on verification of competency. See *Standard Management of All Patients*.

SELECTION OF DEVICES/PROCEDURES

- *Table 1* summarizes all advanced airway devices and interventions approved for pre-hospital use in Rhode Island. These devices are not described in any particular order related to preference of use. EMTs must use their skill and judgment to select the best airway device for each patient in need, keeping in mind the need to avoid hypoxia and hypercarbia during advanced airway procedures, and the need to avoid interrupting other necessary care (such as CPR compressions) during airway management.
    - In general, EMTs should utilize the least invasive device suitable for managing the patient's airway.
    - Oro-endotracheal intubation should be attempted only in those patients for whom the EOA, LMA, or LTA are contraindicated or insertion has been unsuccessful.
    - For a breathing patient in respiratory distress, CPAP should be utilized, if available, before attempting oro- or nasotracheal intubation (only EMT-Ps may attempt nasotracheal intubation.)

TABLE 1: Summary of Advanced Airway Devices & Interventions

Device	B	C	P	General Use
Esophageal Obturator Airway (EOA)	✓	✓	✓	Respiratory or cardiac arrest
Laryngeal Mask Airway (LMA)	✓	✓	✓	Respiratory or cardiac arrest
			✓	Respiratory distress without a gag reflex
LaryngoTracheal Airway (LTA)	✓	✓	✓	Respiratory or cardiac arrest
Continuous Positive Airway Pressure (CPAP)		✓	✓	Respiratory distress in a breathing patient
Orotracheal Intubation		✓*	✓	Respiratory or cardiac arrest (NOTE: Only Paramedics may intubate patients < 1 month of age.)
			✓	Respiratory distress without a gag reflex OR impending airway obstruction
Nasotracheal Intubation			✓	Respiratory distress in a breathing patient for whom orotracheal intubation would be difficult.
Cricothyrotomy			✓	Respiratory failure or apnea, when all other methods of opening and maintaining a patent airway have been attempted and have failed
Nasogastric Tube			✓	Intubated adult patients exhibiting signs and symptoms of gastric distension that compromise ventilation or circulation.

B=EMT-Basic C=EMT-Cardiac P=Paramedic *only if specifically licensed for ETT

GENERAL PROCEDURES

1. **Select the most appropriate advanced airway device.**
2. **Insert the device per device-specific instructions herein, and in accordance with manufacturer's directions. The following considerations are applicable to ALL advanced airway devices:**
   - Do not interrupt ventilation for more than 30 seconds to insert the advanced airway device.
   - Whenever possible, ventilate the patient with OXYGEN prior to advanced airway device insertion.
   - Never use force to insert the advanced airway device.
   - Always check to see that the chest rises with ventilation efforts after insertion of the advanced airway device and that there are bilateral breath sounds, and recheck periodically thereafter.
     - Whenever possible, confirm proper advanced airway device placement using pulse oximetry and/or end-tidal CO_2 measurement if available.
   - Do not remove the advanced airway device in the field unless the patient begins breathing spontaneously or assessment determines that the advanced airway device is or has become incorrectly positioned.
     - If you do remove the advanced airway device, be prepared for regurgitation with suction immediately available.
3. **Confirm placement of advanced airway device.**
   - Listen with stethoscope in at least two locations on each side of the chest to assess for bilateral breath sounds.
   - Listen for air escape over epigastrium with stethoscope.
   - All advanced airway device insertions must have placement confirmed with an objective airway placement verification device (Easy-Cap®, Tube-Check®, or end-tidal carbon dioxide monitor) to confirm placement and monitored (unless patient is in cardiac arrest) using at least continuous cardiac rhythm and pulse oximetry (SpO_2). The addition of continuous waveform end-tidal CO_2 is preferred.
   - Any interfacility transfer patient with an advanced airway device inserted must be continuously monitored by cardiac rhythm, continuous waveform end-tidal CO_2, and pulse oximetry (SpO_2) monitoring. Attach a properly identified waveform recording that documents the device insertion (if performed) and subsequent monitoring to the *RI EMS Ambulance Run Report*.
   - If, after listening to the lungs and over the epigastrium, there are inadequate breath sounds and there is air escape over the epigastrium and/or there are indications by pulse oximetry or end-tidal CO_2 measurement that the advanced airway device is not correctly placed, the advanced airway device should be removed. Ventilate the patient with an alternate method, check the balloon for leaks and reinsert.
   - Frequently recheck advanced airway device position using all available means.
4. **Transport the patient.**
   - When an advanced airway device is in place a qualified EMT must be in attendance continuously managing the airway.
5. **Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report*.**

Esophageal Obturator Airway (EOA)

and Esophageal Gastric Tube Airway (EGTA)

DESCRIPTION & INDICATIONS

- The Esophageal Obturator Airway (EOA) is an advanced airway device that ventilates the patient by occluding the esophagus with a balloon and the nasal/oral area with an occlusive mask.
- The EGTA is functionally similar to the EOA except that it provides an additional lumen for passage of a gastric tube. The EGTA should be utilized in exactly the same manner as described herein for the EOA.
- Use the EOA only in deeply unconscious patients without a gag reflex. This usually means cardiac arrest, but may occur in other settings of respiratory failure.

CONTRAINDICATIONS & PRECAUTIONS

- Do not use the EOA for any of the patients listed below:
  - Conscious or semi-conscious patients
  - Children, and adult patients <5 feet tall
  - Patients known or suspected to have swallowed corrosive materials
  - Patients known or suspected to have diseases of the esophagus
  - Patients with inhalation burn injuries
  - Patients with trauma to the head or neck region that may alter airway anatomy or cause hemorrhage into the airway

PROCEDURE

1. **Assemble EOA. Apply water-soluble lubricant to the device as directed by the manufacturer.**
2. **If c-spine trauma is not suspected, flex the head slightly. If c-spine trauma is possible, maintain a neutral head position using manual stabilization.**
3. **Grasp lower jaw and tongue between thumb and index fingers and lift upwards.**
4. **With the mask attached, insert tube into mouth and place so that the curvature of the tube is the same as the curvature of pharynx.**
5. **Advance the tube into the esophagus and seal mask firmly over nose and mouth. It is best to have one EMT hold the mask seal and a second EMT operate the BVM attached to the EOA.**
6. **Ventilate and see if the chest rises.**
   - If the chest does not rise, remove EOA. Ventilate with an alternate method and attempt reinsertion.
   - Once chest rise with ventilation is assured, inflate obturator cuff with 30-35 mL of air.
7. **Ventilate with bag valve mask device to achieve chest rise.**
8. **Confirm placement of EOA as described under General Procedures.**
9. **Ventilate the patient using a BVM or ventilator.**

Laryngeal Mask Airway (LMA)

DESCRIPTION & INDICATIONS

- The LMA is an advanced airway device that ventilates the patient by occluding the region around the tracheal opening with an inflatable cuff. Some LMA models provide additional features to facilitate passage of an endotracheal tube, a gastric tube, or ease LMA insertion. LMAs are available in multiple sizes and the correct size must be chosen for each patient.
- Use the laryngeal mask airway (LMA) only in deeply unconscious patients without a gag reflex. This usually means cardiac arrest, but may occur in other settings of respiratory failure.

CONTRAINDICATIONS & PRECAUTIONS

- Do not use the LMA for any of the patients listed below:
  - Conscious or semi-conscious patients
  - Patients whose size does not match the available LMA size range
  - Patients known or suspected to have swallowed corrosive materials
  - Patients known or suspected to have diseases of the esophagus or throat, or who have received radiotherapy to the neck or throat area
  - Patients with inhalation burn injuries
  - Patients with trauma to the head or neck region that may alter airway anatomy or cause hemorrhage into the airway.

PROCEDURE

1. **Select the correct size LMA.**
2. **Test the LMA cuff to be sure it holds air, then deflate the cuff according to manufacturer's instructions to improve shape for insertion. Apply water-soluble lubricant to the device as directed by the manufacturer.**
3. **Position the airway.**
   - If C-spine trauma is not suspected, position the patient as recommended by the device manufacturer.
   - If C-spine trauma is suspected, an assistant should maintain the patient's head in the neutral anatomical position and perform a jaw thrust to open the patient's mouth. Attempt to insert the LMA with care, to avoid moving the patient's head or neck.
4. **Insert the device according to manufacturer's instructions, inflate the cuff and assure proper placement, then secure the device in place.**
5. **Ventilate and see if the chest rises.**
   - If the chest does not rise, remove LMA. Ventilate with an alternate method and attempt reinsertion.
   - Once chest rise with ventilation is assured, check the cuff inflation according to manufacturer's instructions.
6. **Confirm placement of LMA as described under General Procedures.**
7. **Ventilate the patient with a BVM or ventilator.**

King LaryngoTracheal Airway (LTA)

DESCRIPTION & INDICATIONS

- The King LaryngoTracheal Airway (LTA) is an advanced airway device that ventilates the patient by occluding the esophagus with a balloon and the nasal/oral area with a second balloon. Some King LTA models provide an additional lumen for passage of a gastric tube. The King LTA is available in a range of sizes from pediatric to large adult.
- Use the LTA only in deeply unconscious patients without a gag reflex. This usually means cardiac arrest, but may occur in other settings of respiratory failure.

CONTRAINDICATIONS & PRECAUTIONS

- Do not use the King LTA for any of the patients listed below:
  - Conscious or semi-conscious patients
  - Patients outside the size range of the available device
  - Patients known or suspected to have swallowed corrosive materials
  - Patients known or suspected to have diseases of the esophagus
  - Patients with inhalation burn injuries
  - Patients with other trauma to the head or neck region that may alter airway anatomy or produce hemorrhage into the airway.

PROCEDURE

1. **Obtain the correct size LTA for the patient.**
2. **Test the cuff inflation system according to manufacturer instructions. Apply water-soluble lubricant to the device as directed by the manufacturer.**
3. **Position the airway.**
   - If C-spine trauma is not suspected, position the patient as recommended by the device manufacturer.
   - If C-spine trauma is suspected, an assistant should maintain the patient's head in the neutral anatomical position and perform a jaw thrust to open the patient's mouth. Attempt to insert the LTA with care, to avoid moving the patient's head or neck.
4. **Insert the device according to manufacturer's instructions, inflate the cuff and assure proper placement, then secure the device in place.**
5. **Ventilate and see if the chest rises.**
   - If the chest does not rise, remove LTA. Ventilate with an alternate method and attempt reinsertion.
   - Once chest rise with ventilation is assured, check the cuff inflation according to manufacturer's instructions.
6. **Confirm placement of LTA as described under General Procedures.**
7. **Ventilate the patient with a BVM or ventilator.**

Continuous Positive Airway Pressure (CPAP)

and Bilevel Positive Airway Press. (BiPAP)

DESCRIPTION & INDICATIONS

- Respiratory distress or failure, due to cardiogenic pulmonary edema, CHF, or COPD/Asthma in which the patient demonstrates spontaneous respirations and a patent, self-maintained airway

CONTRAINDICATIONS

- Circumstances in which endotracheal intubation or a surgical airway is preferred or necessary to secure a patent airway
- Circumstances in which the patient does not improve or continues to deteriorate despite CPAP administration
- Patients under 15 years of age

For circumstances in which the patient does not improve or continues to deteriorate despite CPAP and/or medical therapy, terminate CPAP administration, ventilate the patient with a bag-valve-mask, and consider endotracheal intubation, if available.

PROCEDURE

1. **Assure airway patency.**
2. **Administer 100% O_2 via appropriate delivery system.**
3. **Perform appropriate patient assessment, including obtaining vital signs, pulse oximeter (SpO_2) reading, and cardiac rhythm.**
4. **Apply CPAP device per manufacturer's instructions.**
5. **Continuously reassess the patient.**
6. **Monitor continuous pulse oximetry.**
7. **Monitor continuous end tidal CO_2, if available.**
8. **Follow appropriate protocols for continued treatment.**
9. **Contact Medical Control as soon as possible to allow for prompt availability of hospital CPAP equipment and respiratory personnel.**

Orotracheal Intubation [ALS]

DESCRIPTION & INDICATIONS

- Endotracheal tubes may be orally inserted only in deeply unconscious patients without a gag reflex. This usually means cardiac arrest, but may occur in other settings of respiratory failure.
- An endotracheal tube is a single-lumen tube (double lumen tubes exist, but are not approved for EMS use in RI) that is typically placed from the mouth through the vocal cords under direct visualization using a laryngoscope (traditional, video, or other). Most have an inflatable cuff that helps seal the tracheal end, although uncuffed tubes are sometimes used for pediatric patients. Other approved insertion techniques (with appropriate training) are:
    - Use of a lighted stylet;
    - Use of a guide stylet (i.e., Bougie®)
    - Intubation through a SALT airway or LMA; or
    - Digital (blind) intubation [EMT-P ONLY].
- Only EMTs who are licensed/certified by the RI Department of Health to perform endotracheal intubation may perform orotracheal intubation during prehospital care. **EMT-Ps ONLY** may attempt to intubate newborn infants (<1 month old). When an endotracheal tube is in place, an EMT licensed/certified by the RI Department of Health to perform endotracheal intubation on patients of similar age must be in attendance continuously managing the airway.

> NOTE: Any references to "Endotracheal Intubation" should be presumed to refer to oral insertion (Orotracheal Intubation) unless specific reference is made to Nasotracheal Intubation. Only EMT-Ps may attempt nasal insertion of an endotracheal tube.

SELECTION OF TUBE SIZE

- Use the following guidelines to select the appropriate size endotracheal tube. In order to avoid mainstem placement, typical distance from the teeth to the tip of the inserted tube should be about three times the tube size (24cm for an 8.0 tube, for example).

TABLE 2: ET Tube Sizes for Adult Patients ≥ 16 years of Age

Gender	Age	Endotracheal Tube Size
Male	≥ 16 years of age	8.0 mm
Female	≥ 16 years of age	7.0 mm

TABLE 3: ET Tube Sizes for Newborn Patients (Premature-Full Term Infants) [EMT-P ONLY]

Weight kg	Gestational Age in weeks	Laryngoscope Blade Size	Endotracheal Tube Size	Depth of Insertion from Upper Lip
<1	<28	0	2.5	6.5-7.0
1-2	28-34	0	3.0	7.0-8.0
2-3	34-38	0-1	3.5	8.0-9.0
>3	>38	1	3.5-4.0	>9.0

Pediatric ET Tube Size Formula

For pediatric patients (Toddlers/Children <35 kg/75 lbs), use the endotracheal tube size recommended by the Pediatric Dosing Device. If the device is unavailable, use the following formula to determine the correct size:

ETT size (mm ID) = [age (in years) / 4] + 4

EXAMPLE: ETT size for 6 year old

ETT size (mm ID) = [6 / 4] + 4

= [1.5] + 4

= **5.5 mm ID**

- If using a stylette, it should be placed inside the tube to one-half inch from end. It must not protrude beyond the end of the tube.
- Prior to intubation, ventilate and oxygenate the patient whenever possible. Suction equipment should be available during intubation, and used to remove debris when necessary.
- When using cuffed endotracheal tubes, check to ensure that the cuff is intact, and does not leak air.

PROCEDURE

1. **Position the airway.**
   - Unless C-spine trauma is suspected, place the patient in the "sniffing position." In this position, the neck is flexed (to elevate the occipital region), and the head is hyperextended. Insert the laryngoscope with the left hand. Place the blade to the right of the midline and push the tongue to the left, so that the blade rests in the midline.
   - If C-spine trauma is suspected, an assistant should maintain the patient's head in the neutral anatomical position and perform a jaw thrust to open the patient's mouth. Attempt to intubate with care, to avoid moving the patient's head or neck.
2. **Slowly advance the blade.**
   - A curved blade should enter the vallecula; a straight blade should rest beneath the epiglottis.
   - Exert gentle traction upward; do not use the teeth as a fulcrum.
3. **Visualize the vocal cords and insert the appropriate size endotracheal tube between the cords.**
   - Use the right hand to guide the tube from the right side of the mouth into the midline, and pass the tube through the vocal cords.
   - Tube placement efforts may be repeated once during each intubation attempt. Each intubation attempt should not take more than 30 seconds. A second person should time the procedure and call out when 30 seconds have passed.

- After an unsuccessful attempt, resume ventilation with a bag-valve-mask device using high flow OXYGEN. This is best performed as a two-person procedure with one person assuring a mask seal while the other provides adequate ventilation volume. After the patient is re-oxygenated, a second attempt is permitted. Any further attempts at endotracheal intubation require the approval of Medical Control and must be undertaken while en route.

4. **If a cuffed tube is used, inflate the cuff with enough air to occlude back flow when ventilating the patient.**

   - Avoid over-inflation as it causes tracheal damage.

5. **Confirm placement of endotracheal tube as described under General Procedures.**

6. **Secure and protect the tube.**

   - Insert an oropharyngeal airway or other appropriate device as a bite-block to protect the tube.

   - Secure the tube to prevent displacement and stabilize the head and neck to prevent motion that may dislodge the endotracheal tube (i.e., cervical collar, headblocks and backboard).

ALS PERSONNEL

7. **Medication may be administered through the endotracheal tube, as indicated in the *RI EMS Prehospital Care Protocols and Standing Orders*, using one of the following techniques. For medications to be administered through the ET tube, use 2.0-2.5 times the usual IV dose.**

   An endotracheal tube is the least-preferred option for medication administration, and should be used only if other routes are unavailable.

   - **Dilution technique:**
     - **Adult patients:** Add enough NORMAL SALINE to the medication to make a total volume of 10 mL. Inject the diluted medication down the ET tube.
     - **Pediatric patients <5 feet tall (<35 kg/75lbs):** Add enough NORMAL SALINE to the medication to make a total volume of 3- 5 mL. Inject the diluted medication down the ET tube.
   - **Flush technique:**
     - **Adult patients:** After injection of the medication down the ET tube, inject 10 mL of NORMAL SALINE down the ET tube to flush the medication and then ventilate.
     - **Pediatric patients <5 feet tall (<35 kg/75lbs):** After injection of the medication down the ET tube, inject 3-5 mL of NORMAL SALINE down the ET tube to flush the medication and then ventilate.

Nasotracheal Intubation [EMT-P only]

DESCRIPTION & INDICATIONS

- Nasal intubation is the technique of passing an endotracheal tube through the nose and pharynx into the trachea. This is done without using a laryngoscope to visualize the vocal cords (blind technique). The procedure is limited to breathing patients in whom oral intubation is difficult.
- Hypoxemic CHF and COPD patients
- Closed head injury patients with clenched teeth
- Respiratory distress and an oxygen saturation of < 90% in a patient on 100% oxygen by face mask
- A respiratory rate of 8 or less per minute or 35 or greater per minute
- A Glasgow Coma Score of 8 or less
- Loss of gag reflex

CONTRAINDICATIONS & PRECAUTIONS

- Do not use nasotracheal intubation for any of the patients listed below:
    - Patient receiving anticoagulants, such as Coumadin (warfarin)
    - Patient with upper airway hemorrhage, significant mid-facial trauma, or laryngeal trauma
    - Patient with cerebral spinal fluid leakage or evidence of basilar skull fracture
    - Patient less than 12 years of age

PROCEDURE

1. **Select an appropriate sized endotracheal tube.**
    - Typically one full size smaller than the size used for orotracheal intubation.)
    - Select and check appropriate size ET tube, lubricate distal 4 cm with LIDOCAINE 2% spray or gel.
2. **Prepare patient.**
    - Place patient in position of comfort.
    - Topical anesthesia (LIDOCAINE 2% spray or gel) should be applied to both nares to minimize discomfort.
    - Visually inspect each nares for foreign bodies or large polyps. Digitally inspect and dilate the selected nares with a gloved and lubricated fifth finger.
3. **Slowly advance the tube.**
    - Gently, but firmly advance the tube into the nasal pharynx.
    - When the tube has been advanced to the oropharynx, listen over the end for air moving in and out with each respiration. Attempt to advance the tube through the larynx during inspiration. Keep your other hand on the cricoid cartilage to palpate and assist tube passage.
    - If the tube does not go in easily on the first try, pull it back into the oropharynx, slightly extend head and attempt reinsertion during inhalation. Do not remove it completely unless you have decided to abandon the procedure.

- If unsuccessful after three (3) attempts, abandon the procedure, place the patient on high flow oxygen or assist ventilations as necessary, proceed with prompt transport and appropriate medical management.

4. **Inflate the cuff with enough air to occlude back flow when ventilating the patient.**
   - Avoid over-inflation as it causes tracheal damage.
5. **Confirm placement of endotracheal tube as described under General Procedures.**
6. **Secure and protect the tube.**
   - Document tube depth at the nares.
   - Secure the tube to prevent displacement and stabilize the head and neck to prevent motion that may dislodge the endotracheal tube (i.e. cervical collar and backboard).
7. **Ventilate the patient with a BVM or ventilator.**

Cricothyrotomy [EMT-P only]

INDICATIONS

- Cricothyrotomy may be performed with authorization from Medical Control, **and as a standing order if unable to contact Medical Control**, in the following circumstances:
  - For a patient with evidence of respiratory failure or apnea, when all other methods of opening and maintaining a patent airway have been attempted and have failed;
  - When there is severe laryngeal trauma;
  - When there is foreign body upper airway obstruction that cannot be removed with direct laryngoscopy.

PROCEDURE

Because of risks inherent to the procedure, only attempt cricothyrotomy when absolutely sure of competency, and when no other means is available to secure the patient's airway.

UNDER NO CIRCUMSTANCES SHOULD TRANSPORT BE DELAYED.

1. **Unless contraindicated, place and maintain the patient's head in hyperflexion to position the larynx as far anterior as possible.**
2. **Locate the cricothyroid membrane, between the thyroid and cricoid cartilages, and prepare the site with an antiseptic solution, using aseptic or sterile technique.**
3. **Surgical technique for patients ≥ 8 years of age:**
   - Stabilize the site. Use a scalpel to make a small midline incision through the overlying skin.
   - Within the surgical wound, use the scalpel to make a transverse incision through the cricothyroid membrane, taking care not to incise too deeply or too laterally.
   - If necessary to widen the incision, invert the knife and rotate the handle.
   - Insert an appropriate cannulating device (e.g., tracheostomy or endotracheal tube) to maintain the patency of the surgical opening.
   - Confirm placement and patency by observing chest rise with ventilation/inspiration; listening for air exchange through the surgical airway; and observing clinical improvements.
   - Stabilize and secure the cannulating device.
4. **Percutaneous ("needle") technique for patients < 8 years of age:**
   - Connect a 10 mL syringe to a large bore, over-the-needle catheter placement unit.
   - Stabilize the site. While applying gentle suction to the syringe, angle the needle caudally, and puncture the skin and cricothyroid membrane.
   - Confirm entry into the trachea by aspirating air. Advance the catheter while withdrawing the needle.
   - Fit an adapter to the hub of the catheter (e.g., a 3.0 or 3.5 mm ET tube adapter, or the barrel of a syringe.)

- Confirm placement and patency as described under General Procedures.
- Apply intermittent positive-pressure or continuous high-flow oxygen, as indicated; pause for "passive exhalation" as indicated.

5. Stabilize and secure the cannulating device.

Nasogastric/Orogastric Tube [EMT-P only]

INDICATIONS

- Intubated patients exhibiting signs and symptoms of gastric distension that compromise ventilation or patient care
- Impaired consciousness
- Poisoning/overdose
- Respiratory and cardiorespiratory arrest
- As ordered by Medical Control

CONTRAINDICATIONS

- Significant trauma to the head or face;
- Suspected basilar skull fracture.

PROCEDURE

1. **Lubricate the distal tip of an appropriately-sized nasogastric/orogastric tube.**
2. **Coach conscious patient to swallow as the tube is advanced to the stomach.**
3. **Verify placement by auscultating the epigastrum, while injecting 15-30 mL of air into the tube.**
4. **Stabilize and secure the tube.**
5. **Withdraw and save a sample of gastric aspirate for analysis.**

8.4 Patient Comfort

ASSESSMENT

- ✔ Assess and record the following and reassess frequently: level of consciousness; level of pain; heart rate, respiratory rate, blood pressure; ECG*; oxygen saturation*; capnometry*.

*if available

PAIN MANAGEMENT

> ⚠ Where indicated in the protocols, EMT-Cs or EMT-Ps are authorized to administer an initial dose of pain management medication without further orders. However, authorization from Medical Control is required for all subsequent doses and for administration of pain management and sedation medications for any purpose other than pain management (e.g. for sedation or treatment of CHF) unless specifically authorized by protocol (e.g. *Seizures*, *Major Incident*).

1. **For alert patients able to swallow and who are exhibiting mild to moderate pain from isolated extremity trauma (except for open fractures) all EMTs may consider administering ACETAMINOPHEN (Tylenol®).**

   - **All patients >=2 years of age: Administer ACETAMINOPHEN 10 mg/kg PO (typical adult dose is 650 mg.)**

> ⓘ NOTE: Infant and children's liquid formulations may have different concentrations. Use caution to avoid dosing errors.

ALS PERSONNEL ONLY

2. **For patients exhibiting moderate to severe pain, ALS PERSONNEL ONLY may consider administering MORPHINE SULFATE:**

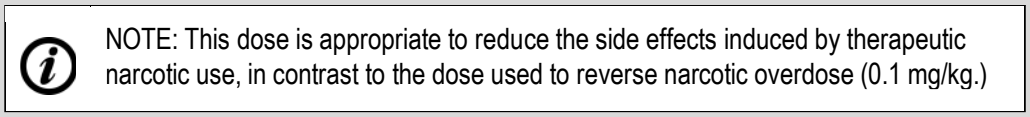
   - **Adult patients: Administer MORPHINE SULFATE 0.1 mg/kg (typical initial adult dose 2-6 mg) IV, in increments of 2 mg every minute, until pain is relieved or until reaching a maximum initial dose of 6 mg.**
     - If unable to establish IV access, administer MORPHINE SULFATE 0.1 mg/kg IM, with a maximum initial dose of 6 mg.
     - Contact Medical Control for permission to administer additional doses of MORPHINE at 5-30 minute intervals to maintain effect.
   - **Pediatric patients < 16 years of age: Administer MORPHINE SULFATE 0.1 mg/kg slow IV push, in increments of 1 mg every minute, to a maximum initial dose of 4 mg.**
     - If unable to establish IV access, administer MORPHINE SULFATE 0.05 mg/kg IM, with a maximum initial dose of 4 mg.
     - Contact Medical Control for permission to administer additional doses of MORPHINE at 5-30 minute intervals to maintain effect.

3. **For patients exhibiting moderate to severe pain, EMT-Ps ONLY may consider administering FENTANYL:**

   - **Adult patients: Administer FENTANYL 0.5 mcg/kg (typical initial adult dose 25-50 mcg) slow IV push, in increments of 12.5 mcg every minute, until desired effect is achieved or until reaching a maximum initial dose of 50 mcg.**
     - If unable to establish IV access, administer FENTANYL 0.5 mcg/kg IM or IN, with a maximum initial dose of 50 mcg.
     - Contact Medical Control for permission to administer additional doses of FENTANYL at 5-30 minute intervals to maintain effect.
   - **Pediatric patients 3-16 years of age: Administer FENTANYL 0.5 mcg/kg IV push, in increments of 12.5 mcg every minute, to a maximum initial dose of 50 mcg.**
     - If unable to establish IV access, administer FENTANYL 0.5 mcg/kg IM or IN, with a max initial dose of 50 mcg.
     - Contact Medical Control for permission to administer additional doses of FENTANYL at 5-30 minute intervals to maintain effect.
   - **Pediatric patients 1-3 years of age: Administer FENTANYL 1 mcg/kg IV push, in increments of 12.5 mcg every minute, to a maximum initial dose of 25 mcg.**
     - If unable to establish IV access, administer FENTANYL 1 mcg/kg IM or IN, with a max initial dose of 2500 mcg.
     - Contact Medical Control for permission to administer additional doses of FENTANYL at 5-30 minute intervals to maintain effect.

4. **If patient develops respiratory depression, hypotension, or depressed consciousness, ALS PERSONNEL ONLY may administer NALOXONE HCl (Narcan®):**

   - **Provide appropriate airway and ventilatory support.**
   - **Administer NALOXONE HCl (Narcan®) 0.01 mg/kg IV push, IM or IN.**
     - Dose may also be diluted in NORMAL SALINE and administered by endotracheal tube, PRN.



PATIENT SEDATION [ALS PERSONNEL ONLY]

5. For patients who are to be cardioverted, or for others who would benefit from sedation, ALS PERSONNEL ONLY may consider administering ONE of the following medications:

NOTE: The following benzodiazepine doses are appropriate for sedation and anxiolysis, NOT for seizure management. See *Seizures & Postictal State*.

- **Administer MIDAZOLAM (Versed®) as follows:**
  - **Adult patients > 60 years of age:** Administer MIDAZOLAM (Versed®) 0.025 mg/kg (typical initial adult dose 0.5-1.5 mg) IV, in increments of 0.25-0.5 mg every minute until desired effect is achieved or until reaching a maximum initial dose of 1.5 mg. If unable to establish IV access, administer MIDAZOLAM 0.05 mg/kg (maximum initial dose 1.5mg) IM or IN.
  - **Adult patients 16-60 years of age:** Administer MIDAZOLAM (Versed®) 0.05 mg/kg (typical initial adult dose 1-2.5 mg) IV, in increments of 0.5-1 mg every minute until desired effect is achieved or until reaching a maximum initial dose of 2.5 mg. If unable to establish IV access, administer MIDAZOLAM 0.05 mg/kg (maximum initial dose 2.5mg) IM or IN.
  - **Pediatric patients 6-16 years of age:** Administer MIDAZOLAM (Versed®) at 0.025mg/kg IV, in increments of 0.25-0.5 mg every minute, to a maximum dose of 2.5 mg. If unable to establish IV access, administer MIDAZOLAM 0.025 mg/kg, to a maximum dose of 2.5mg, IM or IN.
  - **Pediatric patients 6 months to 6 years of age:** Administer MIDAZOLAM (Versed®) at 0.05 mg/kg IV, in increments of 0.25-0.5 mg every minute, to a maximum dose of 1.5 mg If unable to establish IV access, administer MIDAZOLAM 0.05mg/kg to a maximum dose of 1.5 mg IM or IN.
  - Allow 2 min. for effect (10 min. for IM). Contact Medical Control for authorization to administer additional doses of MIDAZOLAM to maintain effect.
  - Do not administer MIDAZOLAM to patients less than 6 months of age.
- **OR Administer LORAZEPAM (Ativan®) as follows:**
  - **Adult patients:** Administer LORAZEPAM (Ativan®) 0.05 mg/kg (typical initial adult dose 2-4 mg) IV, in increments of 1 mg every minute, until desired effect is achieved or until reaching a maximum dose of 4 mg. If unable to establish IV access, administer LORAZEPAM 0.05 mg/kg IM.
  - **Pediatric patients 2 months to 16 years of age:** Administer LORAZEPAM (Ativan®) 0.025 mg/kg IV, in increments of 0.5 mg every minute, until desired effect is achieved or until reaching a maximum dose of 2 mg. If unable to establish IV access, administer LORAZEPAM 0.025 mg/kg to a maximum dose of 2mg IM.
  - Allow 2 min. for effect (10 min. for IM). Contact Medical Control for authorization to administer additional doses of LORAZEPAM to maintain effects.
  - Do not administer LORAZEPAM to patients less than 2 months of age.
- **OR Administer DIAZEPAM (Valium®) as follows:**
  - **Adult patients:** Administer DIAZEPAM (Valium®) 0.05 mg/kg (typical initial adult dose 2-4 mg) IV, in increments of 1 mg every minute, or PR, until desired effect is achieved or until reaching a maximum dose of 4 mg.
  - **Pediatric patients <16 years of age:** Administer DIAZEPAM (Valium®) 0.05 mg/kg IV, in increments of 0.5 mg every minute, or PR, until desired effect is achieved or until reaching a maximum dose of 2.5 mg.
  - Allow 2 min. for effect (10 min. for IM). Contact Medical Control for authorization to administer additional doses of DIAZEPAM to maintain effects.

- **If patient develops respiratory depression or hypotension, provide appropriate airway, respiratory and ventilatory support.**

6. **For certain patients, EMT-Ps ONLY may consider administering both a narcotic (MORPHINE SULFATE or FENTANYL) and a benzodiazepine (MIDAZOLAM [Versed®], LORAZEPAM [Ativan®], DIAZEPAM [Valium®]).**

> The use of medications, including narcotics and/or benzodiazepines, to sedate patients or otherwise produce conditions that facilitate intubation or insertion of other advanced airways is not permitted. "Rapid Sequence Intubation" (RSI) is NOT an approved skill for Rhode Island EMTs. The only occasions when it is acceptable to administer sedatives for advanced airway management are for patients who already have an advanced airway in place, as might be encountered during an interfacility transfer, and then only with permission from Medical Control and in accordance with this protocol.

NAUSEA & VOMITING [ALS PERSONNEL ONLY]

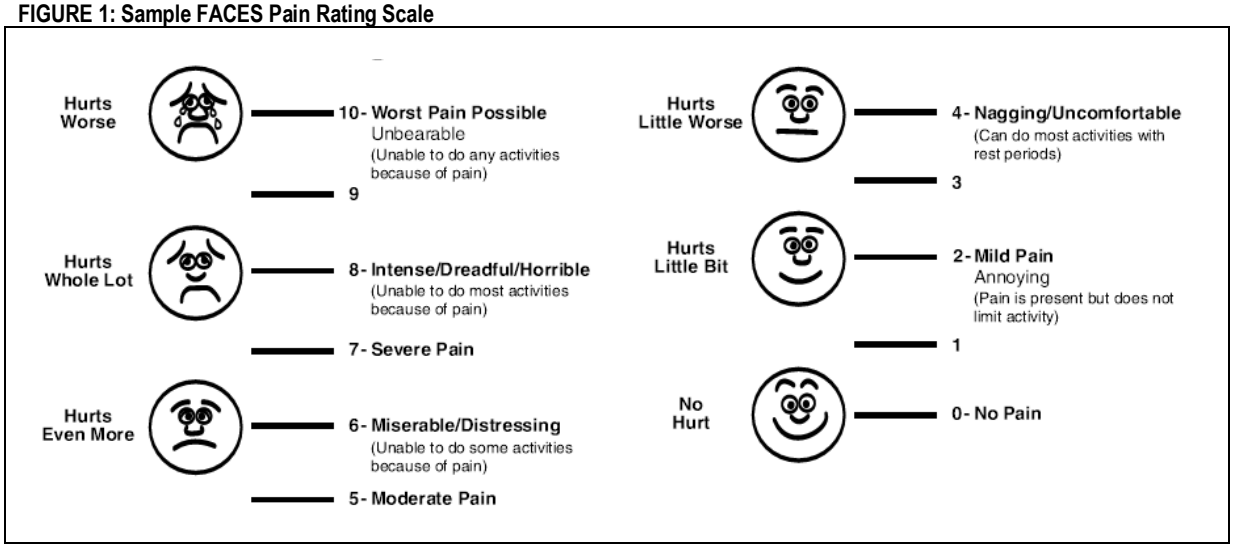
7. **For patients who exhibiting nausea or vomiting, ALS PERSONNEL ONLY may consider administering ONDANSETRON (Zofran®).**

- All patients >= 1 month of age: Administer ONDANSETRON (Zofran®) 0.1 mg/kg IM or IV over 2-5 minutes. Maximum dose 4 mg.

ALL PATIENTS

8. **Document procedures to provide pain management and sedation by completing the *RI EMS Ambulance Run Report*.**

FIGURE 1: Sample FACES Pain Rating Scale



8.5 Pleural Decompression [EMT-P only]

INDICATION

- Pleural decompression may be performed with authorization from Medical Control, **and as a standing order if unable to contact Medical Control**, for a patient with a suspected tension pneumothorax.

PROCEDURE

1. **Locate the appropriate site for decompressing the affected hemithorax:**
   - The second or third intercostal space in the mid-clavicular line; or
   - The fourth or fifth intercostal space in the mid-axillary line.
2. **Prepare the site with an aseptic solution, using aseptic or sterile technique.**
3. **Connect a 10 mL syringe to a large bore, over-the-needle catheter placement unit.**
4. **Stabilize the site.**
   - While applying gentle suction to the syringe, insert the needle over the superior border of the rib perpendicular to the chest wall, and puncture the skin.
5. **Advance the needle while applying suction to the syringe.**
   - Confirm entry into the pleural space by aspirating air. Advance the catheter while withdrawing the needle.
6. **Confirm placement by observing clinical improvements.**
7. **Fit a stopcock/syringe assembly or flutter valve to the hub of the catheter.**
8. **Stabilize and secure the cannulating device.**
9. **Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report*.**

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8.6 Pneumatic Anti-Shock Garment (PASG)

INDICATIONS FOR USE

- Hypotension due to ruptured abdominal aortic aneurysm or similar abdominal hemorrhage;
- Hypotension due to suspected pelvic fracture;
- Anaphylactic shock;
- Otherwise uncontrollable lower extremity hemorrhage;
- Sever traumatic hypotension (shock) when the transportation time to a Hospital Emergency Facility is longer than five (5) minutes.
- For other patients, or in situations in which there is any cause for doubt, the EMT should contact Medical Control prior to inflation of the garment.

GENERAL INFORMATION

- **Do not delay transport to apply the garment.**
- **When used for shock, the garment should be inflated to produce a systolic blood pressure that exceeds the age-related hypotensive values shown in Table 1.**

TABLE 1: Abnormal Vital Signs

Age	Systolic BP	
Preschool (1-6 years)	<75	Note: Absent radial pulse indicates hypotension
School Age (6-12 years)	<85	
Adolescent (12 – 16 years)	<90	
Adult (>16 years)	<90	

- **In most circumstances, the PASG should be deflated slowly and only with an order from Medical Control. Deflation should occur while monitoring the blood pressure to insure that the blood pressure continues to be greater than the age-related value for hypotension.**

If evidence of pulmonary edema develops after inflation, deflate the garment immediately without requesting Medical Control authorization.

- **Contraindications to use of the PASG:**
  - Adjunct to CPR
  - Penetrating chest injury
  - Pulmonary edema
  - Isolated extremity injury or fracture without shock
  - Acute myocardial infarction, cardiac tamponade, or cardiogenic shock
  - Pregnancy
- In other situations, if use is considered, contact Medical Control.

INFLATION PROCEDURE

1. **Assess the patient for shock and record sign/symptoms. If spinal injury is suspected, maintain spinal immobilization.**
2. **Determine the patient's blood pressure by palpation or auscultation.**
3. **Auscultate breath sounds.**
4. **Check patient for bulky/sharp objects in pockets or remove clothing from patient's abdomen and lower extremities.**
5. **Open PASG and arrange garment.**
6. **Apply garment:**
   - Log roll patient, maintaining spinal immobilization.
   - Locate the superior edge of garment just below the lower margin of the ribs.
   - Attach the Velcro® straps with maximum contact, in order to fasten the garment securely.
   - Attach the inflation pump lines to garment and open all in-line valves.
7. **When use is indicated, inflate all compartments simultaneously to produce a level of consciousness and/or vital signs that are within normal limits, as identified in *Table 2*, or until full inflated per garment specifications.**

TABLE 2: Age-Related Normal Vital Signs

Age	Respiratory Rate	Heart Rate	Sys. BP
Preschool (1-6 years)	16-40	70-160	>75
School Age (6-12 years)	12-30	60-140	>85
Adolescent (12 – 16 years)	10-24	60-120	>90
Adult (>16 years)	10-24	60-120	>90
			Note: Absent radial pulse indicates hypotension

8. **Close all in-line valves.**
9. **Frequently reassess and record blood pressure, pulse, breath sounds, respiratory rate, and patient's level of consciousness, while en route to a Hospital Emergency Facility.**

DEFLATION PROCEDURE

10. **Assess and record patient's vital signs.**
11. **Slowly deflate the abdominal segment while monitoring the blood pressure to insure that the blood pressure continues to be greater than the age-related value for hypotension.**
12. **After abdominal deflation is achieved, gradually deflate <u>both legs</u> while monitoring the blood pressure to insure that the blood pressure continues to be greater than the age-related value for hypotension.**

DOCUMENTATION

13. **Document the procedure (and attempts to perform the procedure) by completing the *RI EMS Ambulance Run Report*.**

9.2 Prehospital Formulary

The following list summarizes all medications, both required and optional, for all Rhode Island EMS practice levels. For more specific information, refer to the *Rhode Island Ambulance Licensure & Inspection Manual*.

	Generic Name	Common Trade Names
A	Acetaminophen (oral, rectal)	Tylenol®
	Activated Charcoal	Actidose®, Charcodote®
	Adenosine (injectable)	Adenocard®
	Albuterol 0.083%	Ventolin®, Proventil®
	Amiodarone (injectable, admixture)	Cordarone®
	Antacid (oral)	Mylanta®
	Aspirin (oral)	(aspirin)
	Atropine Sulfate (injectable)	(atropine)
C	Calcium Chloride (injectable)	Calcium Chloride®
	Calcium Gluconate 2.5% (gel)	Calgonate
	Cyanide Antidote Kit	Cyanokit®
D	Dextrose 5% (admixture)	(5% dextrose)
	Dextrose 10% (admixture)	(10% dextrose)
	Dextrose 25% (injectable)	(25% dextrose)
	Dextrose 50% (injectable)	(50% dextrose)
	Diazepam (injectable, rectal)	Valium®, Diastat®
	Diltiazem (injectable)	Cardizem®
	Diphenhydramine HCL (injectable, oral)	Benadryl®
	Dopamine HCL (admixture)	Intropin®
E	Epinephrine HCL 1:1000 (injectable)	Adrenalin®
	Epinephrine HCL 1:10,000 (injectable, admixture)	Adrenalin®
F	Fentanyl Citrate (injectable)	Duragesic®
	Furosemide (injectable)	Lasix®

G	Glucagon (injectable)	(glucagon)
	Glucose (oral)	Glucola®, Glutose®, InstaGlucose®
H	Hydrocortisone Sodium Succinate (injectable)	Solu - Cortef®
I	Ipratropium Bromide 2.9% (injectable)	Atrovent®
L	Lidocaine HCL 2% (injectable, gel/spray, admixture)	Xylocaine®
	Lorazepam (injectable)	Ativan®
M	Magnesium Sulfate (injectable)	(magnesium sulfate)
	Midazolam (injectable)	Versed®
	Morphine sulfate (injectable)	(morphine)
N	Naloxone HCL (injectable)	Narcan®
	Nitroglycerin (tablets/spray, paste, admixture)	Nitrostat®, Nitrobid®
O	Ondansetron (injectable)	Zofran®
	Oxygen (gas)	(oxygen)
P	Phenobarbital (injectable)	(phenobarbitol)
	Organophosphate Auto- Injector (injectable)	2 PAM, Protopam, Mark-I®, Duo-Dote®
S	Sodium Bicarbonate 8.4% (injectable)	(sodium bicarbonate)
T	Terbutaline Sulfate (injectable)	Brethine®, Bricanyl®
	Tetracaine HCL 0.5% (drops)	Pontocaine®
	Thiamine HCL (injectable)	(thiamine)
V	Verapamil HCL (injectable)	Calan®, Isoptin®